

NATURE

[Dec. 28, 1882]

DESTRUCTION OF LIFE IN INDIA BY
POISONOUS SNAKES

IN January, 1870, being then in Calcutta, I collected statistical information which afforded proof that the loss of human as well as animal life in India from the bite of venomous snakes was very great; and as it seemed to me that this ought to be, to a great extent, preventible, I extended my investigations with the view of obtaining accurate information as to the characters and peculiarities of the venomous snakes themselves, the localities in which they most abound; the *modus operandi* of the poison; the circumstances under which the bites are inflicted; the value of any known remedies in the treatment of those bitten, and what measures might possibly be devised for diminishing this serious evil.

After a long and careful investigation of the whole subject, I drew up a detailed report, containing the results of my inquiry, and presented it to the Government of India, with a request that, when published, it should be distributed throughout India, among civil and medical officers, with a view of enabling them to take measures for the protection of human life, and the destruction of the creatures which caused such frightful mortality. I also endeavoured to point out the mode in which the poison destroys life, and to indicate such rational measures as might be of service in the treatment of those bitten.

I am not aware how far the advice I then tendered has been acted on, but I am glad to find, by a recent resolution published in the *Gazette of India*, that some progress is being made, and that the mortality of 1881 has been somewhat less than that of 1880, from this cause, and that this desirable result is due to the measures that have been taken by Government to procure the destruction of the poisonous snakes.

From the returns furnished to me at the instance of Government in 1870, for the year 1869, I made out that the human deaths from snake-bite were as follows in—

Bengal, including Assam and Orissa	...	...	6645
North-West Provinces	...	...	1995
Punjab	...	...	755
Oude	...	...	1205
Central Provinces	...	...	606
Central India	...	...	90
British Burmah	...	...	120

Total... 11,416

These were the only returns received, and represent not much more than half of the whole area, but the total, large as it is, cannot be regarded as the real mortality in these provinces, as the information from which the records were framed being probably only partial and imperfect, it rather under-rates than exaggerates the mortality. I expressed a belief that if systematic registration were adopted, the number recorded would prove to be larger, whilst, if information were gathered from the whole of Hindostan, it would be found that not less than 20,000 persons are destroyed annually by snakes.

Certain suggestions were made as to measures for identification, destruction of venomous snakes, and for registration of deaths. These would appear, from the terms of the resolution above referred to, to have been partially adopted, with the result of causing some diminution of the evil. I pointed out that the snakes which are so destructive to life are the cobra, the bungarus or krait, the echis, and the daboia or Russells' viper, all of which are most conspicuous snakes, and easily identified. There are others, such as Bungarus fasciatus, Ophiophagus elaps, which are dangerous, but comparatively rare, and seldom bite men, whilst the hydrophidæ being confined to the sea or estuaries, are, though very poisonous, not so dangerous to man, and the trimeresuri, which are both uncommon, and at the same time are not so deadly as to endanger life. All these are depicted in coloured figures taken from life, which renders their identification simple and easy.

I further remarked that, "meanwhile there exists the obvious necessity of endeavouring to prevent the numerous fatal accidents by making generally known the appearance and habits of the poisonous snakes, and by instituting rewards for their destruction. With a plain description and a faithful representation of each species in colours, every district, medical or police officer, would be able at once to distinguish the venomous from the innocent snakes, and thus knowledge enough, at least for all practical purposes, might be imparted to intelligent native subordinates, to enable them to recognise the poisonous snakes. By offering a larger reward for these only, their numbers would soon diminish, and the people would be made acquainted with the characters that distinguish the venomous from the harmless snakes, and would learn to avoid them. Thus only, I believe, can the evil be remedied, so long, at all events, as the mode of life among the lower and agricultural classes remain what it now is. I would suggest that magistrates, district and police officers, and civil surgeons be authorised to give the following rewards for poisonous snakes :—

	Annas ¹					
Cobra	8
Bungarus cæruleus	6
Bungarus fasciatus	4
Ophiophagus	8
Russell's Viper	8
Echis	4
Trimeresurus	2

The sum disbursed would no doubt be large, but the results in the saving of life and destruction of snakes would compensate for the expenditure."

Such was the state of things when I left India in 1872. The Government of India then, at my instance, appointed a commission to continue the inquiry which I had commenced three or four years previously. This resulted in several valuable reports by Drs. J. Ewart, A. Wall, and Mr. Vincent Richards, whilst, in conjunction with Dr. Lauder Brunton, F.R.S., an investigation into the nature of the physiological action of the virus was continued here by me,

¹ Eight annas represent one shilling.

the results of which have been published in the *Proceedings* of the Royal Society in 1873, 1874, and 1875. Meanwhile the evil continues, and it is probably within the mark to say that, since the subject came under consideration in 1870, 150,000 to 200,000 human beings, to say nothing of domestic animals, have been destroyed by snake bites.

The subject has often received the most anxious consideration of the Indian Government, and a variety of measures have been resorted to, not without a certain measure of success ; but it is my belief that not until a system of organised, determined, and sustained efforts for the destruction of the snakes is adopted and carried out on the lines suggested in my report, will the evil be fairly grappled with and overcome. The present resolution shows that the matter is again receiving some consideration, and there is good reason to believe that if the measures be prosecuted with energy and determination throughout India, good results will follow. But I repeat it is only by the *destruction of the snakes* that the evil can be mitigated. Something may be expected from the people themselves as their knowledge of the subject increases, as they become more familiar with the appearance or character of the venomous as distinguished from the harmless snakes, and as they gradually become convinced of the futility of all antidotes charms or spells to protect them ; or should they ever alter their present mode of living in huts which have the floor on the ground surface, to huts with raised floors—a consummation devoutly to be wished, not only on account of snakes, but of malaria—but hardly likely to be realised.

For the purpose of hunting out and destroying the evil it is absolutely necessary that a fixed system of rewards should be established, and that in every district there should be an organised body of men whose duty it would be, under proper supervision, to seek out and destroy the snakes, receiving a recompense according to the importance and number of the snakes killed. Such men are to be found among certain castes, and with the aid of descriptions and coloured drawings, such as now are available, there need be no great difficulty in carrying out this much-to-be-desired object. That such a project would be costly is true, but can that cost be considered excessive if it save thousands of lives of men and valuable animals? There can be little doubt that wherever such a system has been even partially carried out, it has been effective ; it needs but combined effort to make universal, that which hitherto would appear to have been but partial success.

From the tenor of the Government resolution referred to, it seems as though an organised scheme for the destruction of venomous snakes, as well as dangerous wild animals, is now likely to be generally adopted in India, and should it be so, there is good ground for hope that the great mortality will decrease—to quote from a former paper on this subject, I would repeat : “ Rewards should be offered freely for venomous snakes only. This, if steadily carried out under some responsible official, would soon diminish snakes and deaths from snake-bite ; and I earnestly protest against the opinion expressed by some Indian authorities, that such rewards are useless—useless

they may have been, and will continue to be, if distributed without discretion for snakes not poisonous. If this method of dealing with the matter—and who can deny its importance—be adopted (but it must be done willingly, and not with the foregone conclusion that it will fail), I am certain that, as part of a comprehensive scheme for the destruction of noxious animals generally, it will succeed.”

The following is the purport of the resolution of November 8, 1882, which shows that in 1881 the number of deaths caused by snake-bite, of men and animals, contrasted favourably with that of the previous year, 1880.

The statement appended to this resolution shows in detail for each province the number of persons and cattle killed by wild animals and snakes, and the number of wild animals and snakes destroyed, with the rewards paid for their destruction during the year 1881, as compared with the previous year. The figures are summarised in the following tables:—

Number of Human Beings and Cattle Killed by Snakes

	Persons killed.		Cattle killed.	
	1880.	1881.	1880.	1881.
Madras	1,182	1,064	227	273
Bombay	972	1,024	89	191
Bengal	10,064	9,208	1,248	154
North-Western Pro- vinces and Oudh ...	4,723	5,010	221	317
Punjab	681	744	78	69
Central Provinces ...	901	985	39	26
British Purma	149	135	194	150
Coorg	3	Nil	Nil	Nil
Assam	211	189	57	16
Hyderabad Assigned Districts	125	197	383	836
Ajmere-Merwara ...	49	54	Nil	Nil
Total	19,060	18,610	2,536	2,032

Snakes killed and Rewards Paid

	Destroyed. 1880.	Rewards.		Destroyed. 1881.	Rewards.	
		Rs.	a. p.		Rs.	a. p.
Madras	Nil	Nil	...	Nil	Nil	...
Bombay	177,078	6,922	3 6	207,113	6,214	0 0
Bengal	23,201	3,733	3 6	19,282	3,430	5 0
N.-W. Provinces and Oudh...	1,029	10	2 0	1,142	56	5 3
Punjab.....	9,126	635	5 0	22,279	1,587	4 0
Cent. Provinces	866	336	6 0	1,493	562	8 0
British Burma.	997	2	0 0	2,990	27	0 0
Coorg.....	58	Nil	...	16	4	0 0
Assam.....	202	Nil	...	300	34	0 0
Hyderabad As- signed districts	158	23	14 0	332	45	8 0
Ajmere-Merwara	61	Nil	...	21	Nil	...
Total	212,776	11,663	2 0	254,968	11,960	14 3

The deaths of human beings from snake-bite were, in 1880, 19,060; while in 1881 they were 18,610.

In 1880, 212,776 snakes were destroyed at a cost of Rs 11,663.

In 1881, 254,968 snakes were destroyed at a cost of Rs 11,961.

Thus with an increased expenditure of Rs 298 in 1881, 42,192 more snakes were destroyed and 450 lives were preserved, above the expenditure of the previous years.

With regard to the measures adopted for the destruction of venomous snakes, the following remarks are made by the Governor-General in Council :—

“As regards the destruction of venomous snakes, special measures were adopted in some provinces, of which it appears desirable to give a brief account in case they may be considered suitable for adoption elsewhere. In Bengal a scheme has been sanctioned by the local Government in the case of the Patna Division, under which persons destroying snakes can obtain certificates from certain selected planters vouching for the poisonous nature of the snakes destroyed. The production of such a certificate entitles the holder to secure from the local authorities the reward offered whenever he finds an opportunity of applying for it. As observed by the Government of Bengal, this concession will probably be found to add much to the convenience of persons claiming rewards, and to act as an inducement towards the destruction of poisonous snakes. The expediency of extending the scheme will be considered by the Local Government when the result of the current year's operations are known. In the North-Western Provinces and Oudh the Lieutenant-Governor and Chief Commissioner has sanctioned the entertainment tentatively in each district of those provinces of a staff of Kanjars, or men of similar caste, who trap and kill reptiles, for the systematic destruction of venomous snakes. These men will receive pay at the rate of Rs. 2 per mensem, together with an additional reward of two annas for every venomous snake in excess of twenty destroyed by each man during any month. A gang of snake-hunters is also to be employed at each tahsili, and, if the measure proves successful, it is proposed that similar gangs should be eventually appointed to each police circle of other local area. It appears to the Governor General in Council that a plan for the destruction of snakes such as that initiated in the North-Western Provinces and Oudh, is likely to prove far more efficacious than the mere offer of rewards, although it is true that unless such operations are confined to towns and villages and their neighbourhood, where it is believed that the largest number of deaths occur from snake-bite, they will probably be very costly. His Honour the Lieutenant-Governor of the Punjab has issued a circular to commissioners and superintendents in the Punjab, drawing attention to the matter with a view to the adoption of measures for destroying snakes by system of rewards to be granted by district committees and municipalities. Casts and lithographed pictures of the more common species of deadly snakes have already been supplied to the police stations in some districts, and deputy commissioners have been requested to suggest to municipal and

district committees the desirability of procuring similar means of reference for the purpose of testing applications for rewards. In British Burma the Chief Commissioner, with a view to encourage village snake-hunts in the rice plains, has arranged to grant sums varying from Rs 10 to Rs 20, according to the number of houses, in aid of a feast or *pweh* at the end of the annual hunt to every village which successfully carries out such an undertaking.

"On the whole, the results recorded during the year under review appear to the Government of India to be more satisfactory than those of the previous year. The Governor General in Council is glad to notice that the question of taking measures to reduce the lamentable loss of life which is at present caused by wild animals and venomous snakes is receiving the earnest consideration of Local Governments and Administrations, and His Excellency in Council will await with interest the reports showing the results of the special measures which have been adopted in some provinces. It is clear that much still remains to be done ; but if sustained efforts are made and well-considered plans adopted for the extermination of wild beasts and deadly snakes, His Excellency in Council believes that the number of deaths from these causes will in course of time be materially reduced.—
Simla, November 8, 1882."

From the above it appears that more vigorous measures than any hitherto adopted have been taken for the destruction of venomous snakes, and the contrast of the results of 1881 with those of 1880, warrant the anticipation of further benefit if these measures are only carried out with a sustained determination to succeed. It is mainly a question of perseverance and the expenditure of money, and one can hardly imagine a more desirable object on which to expend both energy and rupees. But it is essential that the system be laid down on some general principles for the whole of India, to be worked out in detail, according to the needs or peculiarities of each district. There should, in short, be a department with a responsible chief and subordinate agents, for whom certain rules should be laid down to be carried out steadily and without hindrance throughout the country, leaving much of the detail to the discretion of local authorities. I would insist on the importance of carrying it out on broad principles everywhere. When such a department is constituted under a proper head—and there are many persons well fitted for such a duty—then, I believe, venomous snakes and other noxious animals will decrease in numbers, and people will cease to be startled by these appalling losses of life.

J. FAYRER



